CHAPTER 6

CERTIFIED SINGLE-POINT RIGGING PROCEDURES FOR HOWITZERS AND WEAPONS SYSTEMS

6-1. INTRODUCTION

This chapter contains rigging procedures for single-point howitzer and weapon system loads that have been certified for sling load. Each rigging procedure is found in a paragraph that includes a description of the load, materials required for rigging, and steps to complete the procedure. An applicability paragraph is also a part of each paragraph and identifies the certified loads. The certified single-point rigging procedures for truck and towed combination loads are in this section. Paragraphs 6-2 through 6-14 give detailed instructions for rigging loads.

NOTE: Reach Pendants may be used on all single point loads. A static discharge person is not required when using a Reach Pendant.

6-2. M101A1 105-MM Howitzer, with or without A-22 Cargo Bags

a. Applicability. The following items in Table 6-1 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

Table 6-1. M101A1 105-MM Howitzer

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M101A1 Howitzer	4,980	10K 15K 25K 40K	30/30 33/3 12/12 22/3	95
M101A1 Howitzer with one A-22 Cargo Bag	7,180	10K 15K 25K 40K	30/30 33/3 12/12 22/3	75
M101A1 Howitzer with two A-22 Cargo Bags	9,380	10K 15K 25K 40K	30/30 33/3 12/12 22/3	80
M101A1 Howitzer with three A-22 Cargo Bags	11,580	10K 15K 25K 40K	30/30 33/3 12/12 22/3	75

b. Materials. The following materials are required to rig this load:

(1) Sling set (10,000 or 25,000-pound capacity) (USA).

(2) Sling set (15,000 or 40,000-pound capacity) (USMC).

(3) Sling leg assembly (2,500-pound capacity) from a 10,000-pound sling set, one per A-22 container.

(4) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(5) Cord, nylon, Type III, 550-pound breaking strength.

(6) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(7) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable substitute.

(8) Tie-down strap, CGU/1B (as required).

(9) Bag, Cargo, A-22, as required.

(10) Apex fitting (10,000-pound capacity), one per A-22 container.

c. Personnel. Two persons can prepare and rig this load in 20 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

(a) Close and lock the breech.

(b) Close and secure the trails. Rotate the lunette to the down position. Secure the trail closing lock handle with Type III nylon cord or tape.

(c) Remove and secure the muzzle, breech, and tube covers.

(d) Pad or remove all sight mounts.

(e) Place the gun section equipment chest and other equipment on the trails and secure it with tie-down straps.

(f) Engage one hand brake.

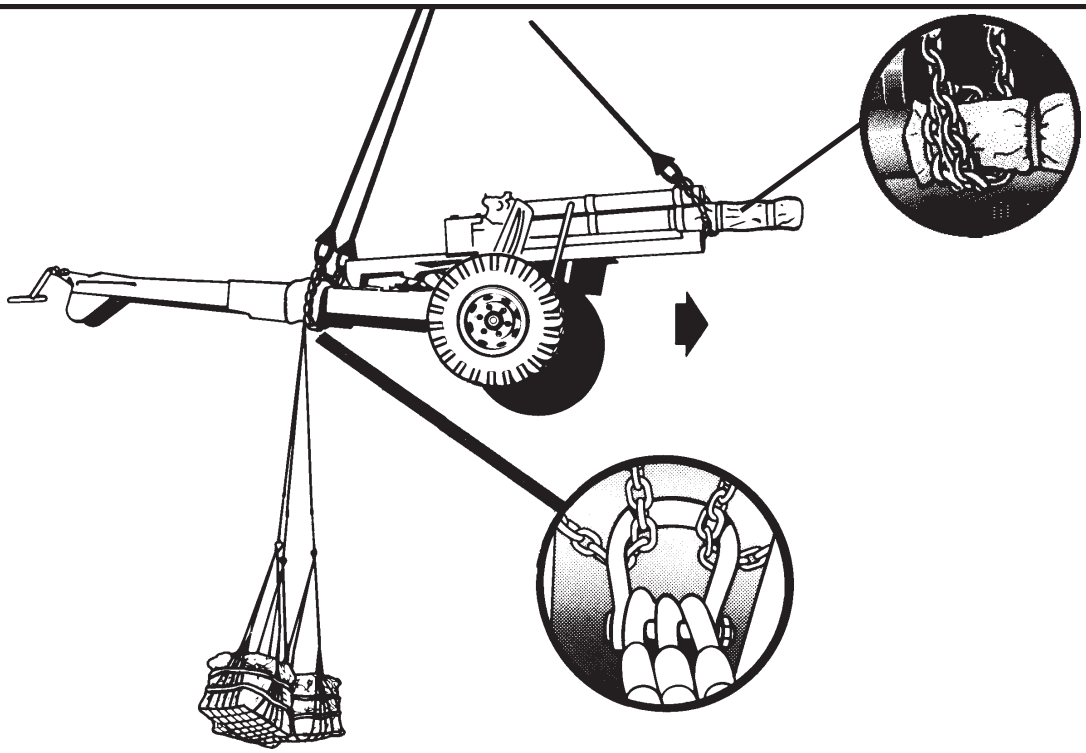
(g) Pad the gun tube above the cradle and around the forward edge of the recoil damper assembly. Secure the padding with tape or 1/4-inch cotton webbing.

(h) Pad the left and right trails aft of the traveling lock shaft area. Secure the padding with tape or 1/4-inch cotton webbing.

(2) Rigging. Rig the load according to the steps in Figure 6-1.

(3) Hookup. The hookup team stands on top of the trails or alongside the howitzer. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the helicopter but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



RIGGING STEPS

1. Position the apex fitting on top of the breech. Route outer sling legs 1and 2 to the trails. Route inner sling legs 3 and 4 to the muzzle. Sling legs 1 and 3 must be on the left side of the load.

2. Wrap the chain end of sling leg 1 around the padded area of the left trail. When using the 10,000 or 25,000-pound capacity sling set, make two complete wraps around the left trail. Place the correct link from Table 6-1 in the grab hook. Repeat with sling leg 2 on the right trail. Secure the excess chain with Type III nylon cord.

3. Position the grab hook sling leg 3 on the left side of the gun tube padded area. Wrap the chain end of sling leg 3 one complete turn around the gun tube padded area. Place the correct link from Table 6-1 in the grab hook. Repeat with sling leg 4 with the grab hook on the opposite side of the gun tube. Ensure the chains completely encircle and not just cradle the gun tube.

4. Cluster and tie or tape (breakaway technique) the sling legs together on top of the howitzer to prevent entanglement during hookup and lift-off.

5. Attach the accompanying A-22 (s) by placing an additional apex fitting around the inner chains of sling legs 1 and 2, so the fitting is between the trails. Route the chain end of the additional sling leg through the clevis on the A-22 cargo bag and insert link 3 in the grab hook. Place the other end of the sling leg in the additional apex fitting between the trails. Repeat this procedure for each A-22 cargo bag being lifted.

Figure 6-1. M101A1 105-MM Howitzer

6-3. M102 105-MM Howitzer

a. Applicability. The following item in Table 6-2 is certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

Table 6-2. M102 105-MM Howitzer

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M102 Howitzer	3,330	10K	55/3	80

b. Materials. The following materials are required to rig this load:

(1) Sling set (10,000-pound capacity).

(2) Tape, adhesive,pressure-sensitive, 2-inch wide roll.

(3) Cord, nylon, Type III, 550-pound breaking strength.

(4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(5) Tie-down strap, CGU/1B (as required).

c. Personnel. Two persons can prepare and rig this load in 10 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

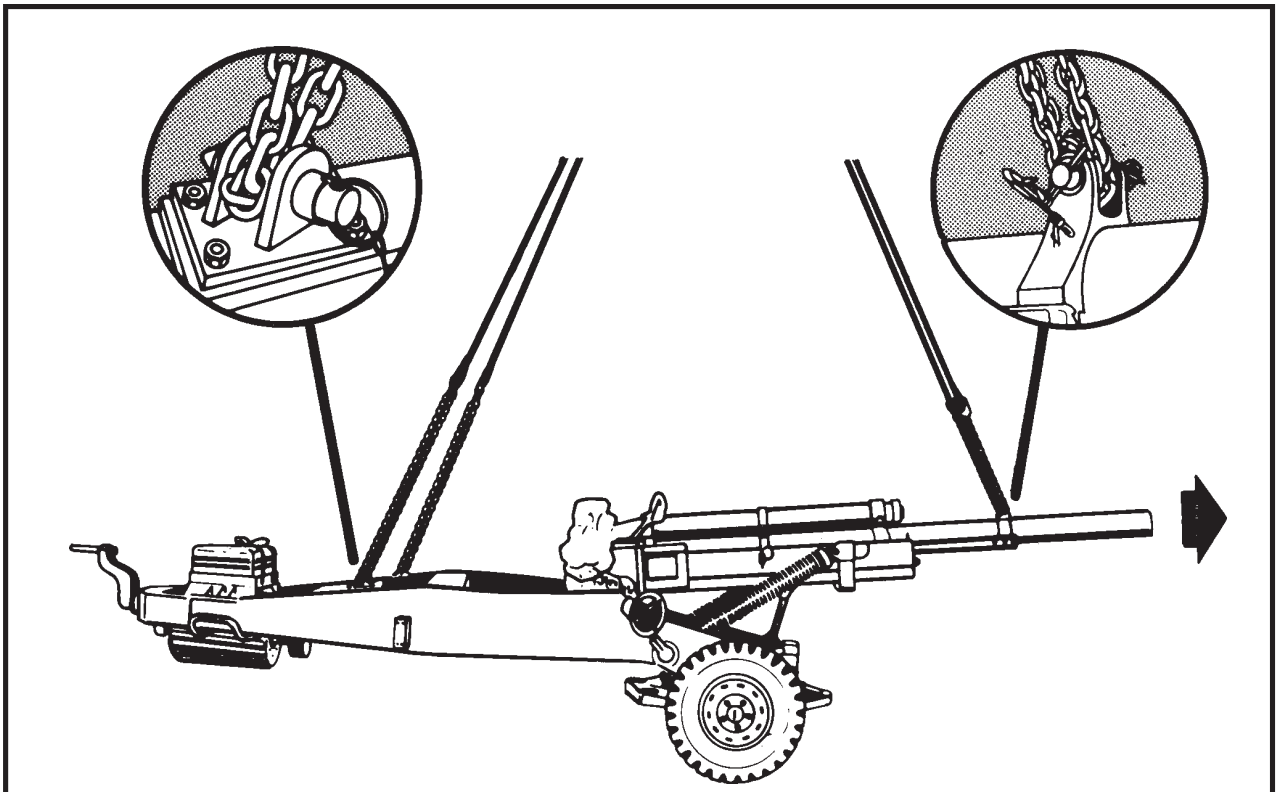
(a) Place the muzzle and sight covers on the howitzer and secure them with Type III nylon cord.

(b) Place the section equipment chest on the end of the trails and secure it with tie-down straps.

(2) Rigging. Rig the load according to the steps in Figure 6-2.

(3) Hookup. The hookup team stands on top of the trails next to the breech. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the helicopter but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



RIGGING STEPS

1. Position the apex fitting on top of the breech. Route outer sling legs 1and 2 to the trails. Route inner sling legs 3 and 4 to the muzzle. Sling legs 1 and 3 must be on the left side of the load.

2. Remove the pin from the lift provision on the left trail. Center the chain end of sling leg 1 in the lift provision. Reinstall the pin in the lift provision. Place the correct link from Table 6-2 in the grab hook. Repeat with sling leg 2 on the right trail. Secure the excess chain with Type III nylon cord.

3. Remove the pin from the lift provision on the gun tube. Center the chain end of sling legs 3and 4 in the lift provision. Reinstall the pin in the lift provision. Place the correct link from Table 6-2 in the grab hook. Secure the excess chain with Type III nylon cord.

NOTE: This item may be rigged with only three legs by eliminating one of the sling legs to the gun tube.

4. Cluster and tie or tape (breakaway technique) the sling legs together on top of the howitzer to prevent entanglement during hookup and lift-off.

Figure 6-2. M102 105-MM Howitzer

6-4. M102 105-MM Howitzer with One A-22 Cargo Bag

a. Applicability. The following item in Table 6-3 is certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

Table 6-3. M102 105-MM Howitzer with One A-22 Cargo Bag

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M102 Howitzer with one A-22 Cargo Bag	5,660	10K	105/3	90

NOTE: More than one A-22 may be used with these rigging procedures as long as the total weight of the A-22s does not exceed 2,500 pounds.

b. Materials. The following materials are required to rig this load:

(1) Sling set (10,000-pound capacity).

(2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(3) Cord, nylon, Type III, 550-pound breaking strength.

(4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(5) Assembly, tie-down (10,000-pound capacity).

(6) Clevis, large

(7) Bag, Cargo, A-22.

c. Personnel. Two persons can prepare and rig this load in 30 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

(a) Place the muzzle and sight covers on the howitzer and secure them with Type III nylon cord.

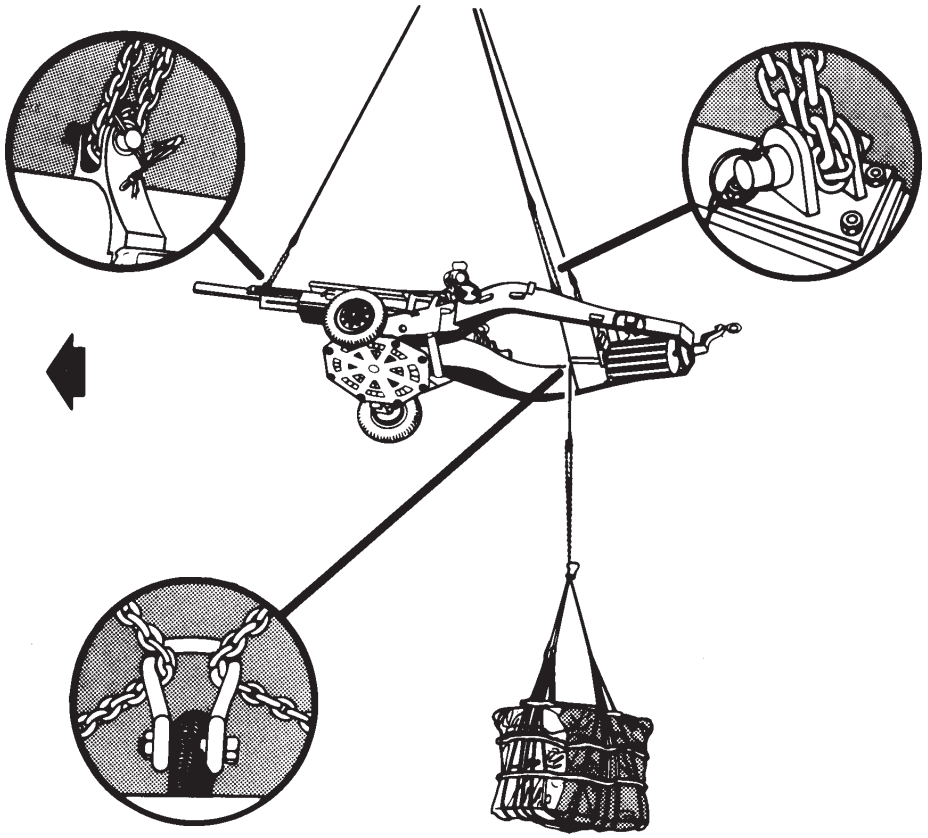
(b) Place the section equipment chest on the end of the trails and secure it with tie-down straps.

(c) Place a large clevis assembly on the ground between the howitzer trails.

(2) Rigging. Rig the load according to the steps in Figure 6-3.

(3) Hookup. The hookup team stands on top of the trails next to the breech. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the helicopter but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



RIGGING STEPS

1. Remove one sling leg from the sling set. This sling leg will be used to lift the A-22 cargo bag.

2. Position the apex fitting on top of the breech. Route outer sling legs 1and 2 to the trails. Route inner sling leg 3 to the muzzle.

3. Remove the pin from the lift provision on the left trail. Center the chain end of sling leg 1 in the lift provision. Reinstall the pin in the lift provision. Place the correct link from Table 6-3 in the grab hook. Repeat with sling leg 2 on the right trail. Secure the excess chain with Type III nylon cord.

4. Remove the pin from the lift provision on the gun tube. Center the chain end of sling leg 3 in the lift provision. Reinstall the pin in the lift provision. Place the correct link from Table 6-3 in the grab hook. Secure the excess chain with Type III nylon cord.

5. Cluster and tie or tape (breakaway technique) the sling legs together on top of the howitzer to prevent entanglement during hookup and lift-off.

6. Attach the large clevis around the inner chains of sling legs 1 and 2, so the clevis is between the trails. Route the chain end of the additional sling leg through the clevis on the A-22 cargo bag and insert link 3 in the grab hook. Route the sling leg under the trail and place eye of the sling leg on the bolt of the large clevis between the trails.

Figure 6-3. M102 105-MM Howitzer with One A-22 Cargo Bag

6-5. M102 105-MM Howitzer with Two or Three A-22 Cargo Bags

a. Applicability. The following items in Table 6-4 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

Table 6-4. M102 105-MM Howitzer with Two or Three A-22 Cargo Bags

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M102 Howitzer with Two A-22 Cargo Bags	7,560	25K	83/3	80
M102 Howitzer with Three A-22 Cargo Bags	9,760	25K	83/3	80

b. Materials. The following materials are required to rig this load:

(1) Sling set (25,000-pound capacity).

(2) Sling leg assembly (2,500-pound capacity) from a 10,000-pound capacity sling set. One for each A-22 cargo bag.

(3) Bag, Cargo, A-22, as required.

(4) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(5) Cord, nylon, Type III, 550-pound breaking strength.

(6) Tie-down strap, cargo, CGU-1/B, as required.

(7) Clevis, large.

(8) Clevis, medium (2 each).

(9) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(10) Fitting, apex (10,000-pound capacity).

c. Personnel. Two persons can prepare and rig this load in 60 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

(a) Place the muzzle and sight covers on the howitzer and secure them with Type III nylon cord.

(b) Place the section equipment chest on the end of the trails and secure it with tie-down straps.

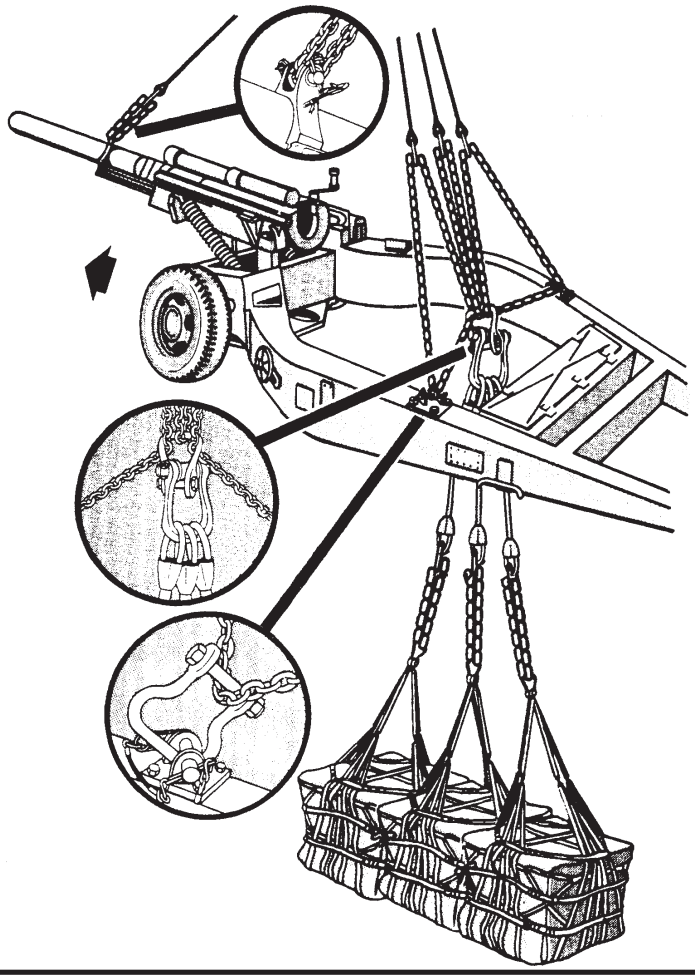
(c) Place a large clevis assembly on the ground between the howitzer trails.

(d) Remove the left trail lift provision pin and place a medium clevis assembly, bell portion down, in the provision. Reinstall the lift provision pin. Repeat the procedures for the lift provision on the right trail.

(2) Rigging. Rig the load according to the steps in Figure 6-4.

(3) Hookup. The hookup team stands on top of the trails next to the breech. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the helicopter but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



RIGGING STEPS

1. Position the apex fitting on top of the breech. Route outer sling legs 1and 2 to the trails. Route inner sling leg 3 to the howitzer tube, and sling leg 4 to the area between the trails.

2. Route sling leg 1 through the medium clevis installed on the left trail and through the large clevis on the ground. Place the correct link from Table 6-4 in the grab hook. Repeat with sling leg 2 on the right trail. Secure the excess chain with Type III nylon cord

3. Remove the pin from the lift provision on the gun tube. Center the chain end of sling leg 3 in the lift provision. Reinstall the pin in the lift provision. Place the correct link from Table 6-4 in the grab hook. Secure the excess chain with Type III nylon cord.

4. Route the chain end of sling leg 4 through the large clevis on the ground and insert link 56 in the grab hook.

5. Cluster and tie or tape (breakaway technique) the sling legs together on top of the howitzer to prevent entanglement during hookup and lift-off.

6. Route the chain end of the additional sling legs through the clevis on the A-22 cargo bags, one sling leg for each A-22 cargo bag, and insert link 3 in the grab hook. Route the sling legs under the trail and place the eye of the sling legs on an apex fitting. Attach the apex fitting to the large clevis between the trails.

Figure 6-4. M102 105-MM Howitzer with Two or Three A-22 Cargo Bags

6-6. Two M102 105-MM Howitzers

a. Applicability. The following items in Table 6-5 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

Table 6-5. Two M102 105-MM Howitzers

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/CENTER/REAR	RECOMMENDED AIRSPEED (KNOTS)
Two M102 Howitzers	6,660	10K	60/20/3	90

b. Materials. The following materials are required to rig this load:

(1) Sling set (10,000-pound capacity) with one additional sling leg .

(2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(3) Cord, nylon, Type III, 550-pound breaking strength.

(4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(5) Tie-down strap, cargo, CGU-1/B.

(6) Pad, energy dissipating, honeycomb, 30- x 36-inch. (A wooden block or four sheets of felt may be substituted for the honeycomb.)

(7) Felt sheet, 24- x 60-inch (2 each) or equivalent padding.

c. Personnel. Two persons can prepare and rig this load in 30 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

(a) Position two howitzers side by side with the wheels approximately 18 inches apart and the barrels facing the same direction.

(b) Place honeycomb padding between the inside wheels of the howitzers. Slide the howitzers together and securely lash the wheels together with the tie-down straps.

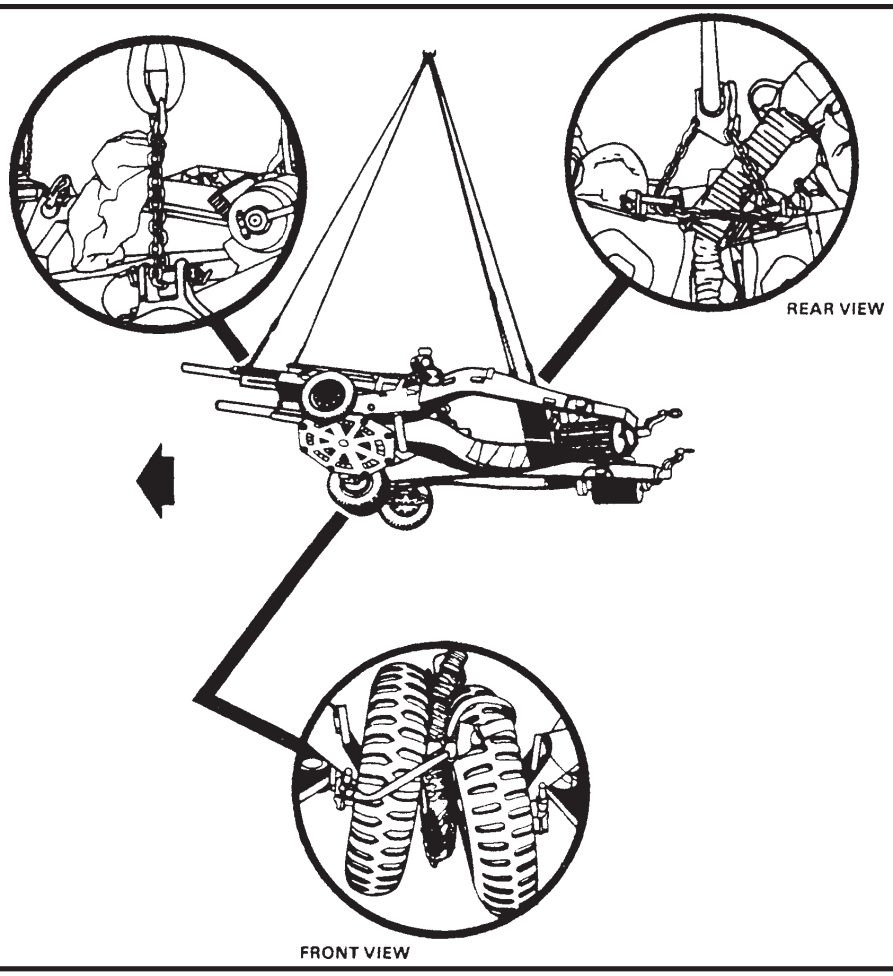
(c) Wrap one sheet of felt around each inboard trail. Secure the felt with tape or Type III nylon cord. Ensure the lift provisions are accessible.

(d) Place the muzzle and sight covers on the howitzer and secure them with Type III nylon cord.

(2) Rigging. Rig the load according to the steps in Figure 6-5.

(3) Hookup. The hookup team stands on top of the padding wrapped around the inside trails. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the helicopter but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



RIGGING STEPS

1. Add the additional sling leg to the sling set. The outer sling legs are numbers 1 and 2, the inner sling legs are numbers 3 and 4, and the center sling leg is number 5.

2. Position the apex fitting on top of the inner wheels at the center of the load. Route outer sling legs 1and 2 to the barrels. Route inner sling legs 3 and 4 to the outside trails, and center sling leg 5 to the inside trails of both howitzers. Sling legs 1 and 3 must be connected to the left howitzer.

3. Route the chain end of sling leg 1 through the lift provision on the barrel of the left howitzer. Place the correct link from Table 6-5 in the grab hook. Repeat with sling leg 2 on the right howitzer. Secure the excess chain with Type III nylon cord

4. Route the chain end of sling leg 3 through the lift provision on the outside trail of the left howitzer. Place the correct link from Table 6-5 in the grab hook. Repeat with sling leg 4 on the right howitzer. Secure the excess chain with Type III nylon cord.

5. Route the chain end of sling leg 5 through the lift provisions on the inside trails of both howitzers. Place the correct link from Table 6-5 in the grab hook. Secure the excess chain with Type III nylon cord.

6. Cluster and tie or tape (breakaway technique) the sling legs together on top of the howitzers to prevent entanglement during hookup and lift-off.

Figure 6-5. Two M102 105-MM Howitzers

6-7. Two M102 105-MM Howitzers with One, Two, or Three A-22 Cargo Bags

a. Applicability. The following items in Table 6-6 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

Table 6-6. Two M102 105-MM Howitzers with One, Two, or Three A-22 Cargo Bags

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/CENTER/REAR	RECOMMENDED AIRSPEED (KNOTS)
Two M102 Howitzers with one A-22 Cargo Bag	8,860	10K	60/20/3	90
Two M102 Howitzers with two A-22 Cargo Bags	11,060	25K	48/16/3	90
Two M102 Howitzers with three A-22 Cargo Bags	13,260	25K	48/16/3	90

b. Materials. The following materials are required to rig this load:

(1) Sling set (10,000 or 25,000-pound capacity) with additional sling leg(s) (as required).

(2) Bag, Cargo, A-22, as required.

(3) Apex fitting (10,000 or 25,000-pound capacity) (as required) (1 each).

(4) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(5) Cord, nylon, Type III, 550-pound breaking strength.

(6) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(7) Tie-down strap, cargo, CGU-1/B.

(8) Pad, energy dissipating, honeycomb, 30- x 36-inch. (A wooden block or four sheets of felt may be substituted for the honeycomb.)

(9) Felt sheet, 24- x 60-inch (2 each) or equivalent padding.

c. Personnel. Two persons can prepare and rig this load in 30 minutes. Add 15 minutes for each A-22 cargo bag.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

(a) Position two howitzers side by side with the wheels approximately 18 inches apart and the barrels facing the same direction.

(b) Place honeycomb padding between the inside wheels of the howitzers. Slide the howitzers together and securely lash the wheels together with the tie-down straps.

(c) Wrap one sheet of felt around each inboard trail. Secure the felt with tape or Type III nylon cord. Ensure the lift provisions are accessible.

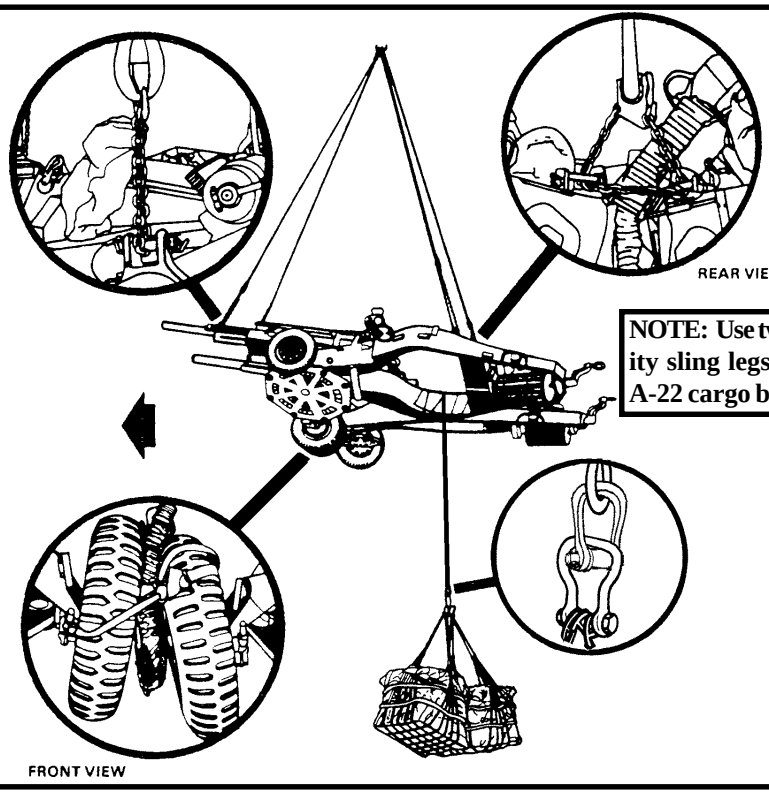
(d) Place the muzzle and sight covers on the howitzer and secure them with Type III nylon cord.

(2) Rigging. Rig the load according to the steps in Figure 6-6.

(3) Hookup. The hookup team stands on top of the padding wrapped around the inside trails. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the helicopter but remains close to the load as the helicop

ter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



NOTE: Use two 25,000-pound capacity sling legs when carrying three A-22 cargo bags

RIGGING STEPS

1. Add the additional sling leg to the sling set. The outer sling legs are numbers 1 and 2, the inner sling legs are numbers 3 and 4, and the center sling leg is number 5.

2. Position the apex fitting on top of the inner wheels at the center of the load. Route outer sling legs 1and 2 to the barrels. Route inner sling legs 3 and 4 to the outside trails, and center sling leg 5 to the inside trails of both howitzers. Sling legs 1 and 3 must be connected to the left howitzer.

3. Route the chain end of sling leg 1 through the lift provision on the barrel of the left howitzer. Place the correct link from Table 6-6 in the grab hook. Repeat with sling leg 2 on the right howitzer. Secure the excess chain with Type III nylon cord

4. Route the chain end of sling leg 3 through the lift provision on the outside trail of the left howitzer. Place the correct link from Table 6-6 in the grab hook. Repeat with sling leg 4 on the right howitzer. Secure the excess chain with Type III nylon cord.

5. Route the chain end of sling leg 5 through the lift provisions on the inside trails of both howitzers. Place the correct link from Table 6-6 in the grab hook. Secure the excess chain with Type III nylon cord.

6. Cluster and tie or tape (breakaway technique) the sling legs together on top of the howitzers to prevent entanglement during hookup and lift-off.

7. Wrap the chain end of the sling leg(s) around both inboard trails over the felt sheets and insert link 60 in the grab hook. Secure the excess chain with Type III nylon cord.

8. Route the other end of the sling leg(s) under the outside trail of the howitzers and attach the additional apex fitting. Place the medium clevis of the A-22s on the bolt of the apex fitting.

Figure 6-6. Two M102 105-MM Howitzers with One, Two, or Three A-22 Cargo Bags

6-8. M119 105-MM Howitzer, Folded/Towed Position

a. Applicability. The following items in Table 6-7 are certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 6-7. M119 105-MM Howitzer, Folded/Towed Position

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M119 Howitzer	4,400	10K	50/10	120
M119 Howitzer with accompanying load	7,400	25K	40/10	120

b. Materials. The following materials are required to rig this load:

(1) Sling set (10,000-pound capacity) (when moving the howitzer without accompanying load).

(2) Sling set (25,000-pound capacity) (when moving the howitzer with an accompanying load).

(3) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(4) Cord, nylon, Type III, 550-pound breaking strength.

(5) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(6) Sling set chain safety clamp.

(7) Webbing, nylon, tubular, 1/2-inch (as required).

(8) Line, multiloop, Type XXVI, 4-loop, 3-foot.

(9) Clevis, suspension, medium (2 each).

(10) Bag, cargo A-22 or net, cargo (5,000- or 10,000-pound capacity).

(11) Apex fitting (10,000- or 25,000-pound capacity) (1 each).

c. Personnel. Two persons can prepare and rig this load in 30 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

(a) Place the howitzer in the folded/towed position. Ensure the wheel knock-off hub is horizontal. Engage the right wheel parking brake (wheel with the knock-off hub).

(b) Secure the sight cover to the dial sight with tape or Type III nylon cord.

(c) Secure the firing platform, hand spike, and jack to the trail assembly with Type III nylon cord.

(d) Ensure the lunette is in the extended position. Install the towing eye stop (C-clamp) on the lunette and secure in place with its retaining pins, when applicable.

(e) The sling set chain safety clamp is an additional authorized item. Refer to TM 9-1015-252-10 for NSN and installation information.

(f) When the detachable field spade is attached, ensure the two locking pins are installed and locked. Route and tie a length of Type III nylon cord through the key ring of the cable and around the end of the locking pin.

(2) Rigging. Rig the load according to the steps in Figure 6-7.

NOTE: When an accompanying load requires a sling leg, you may remove and use one of the inner sling legs from the sling set, leaving one sling leg attached to the lunette of the howitzer.

(3) Hookup. The hookup team stands beside the howitzer on the trails. The static wand person discharges the

static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the helicopter but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

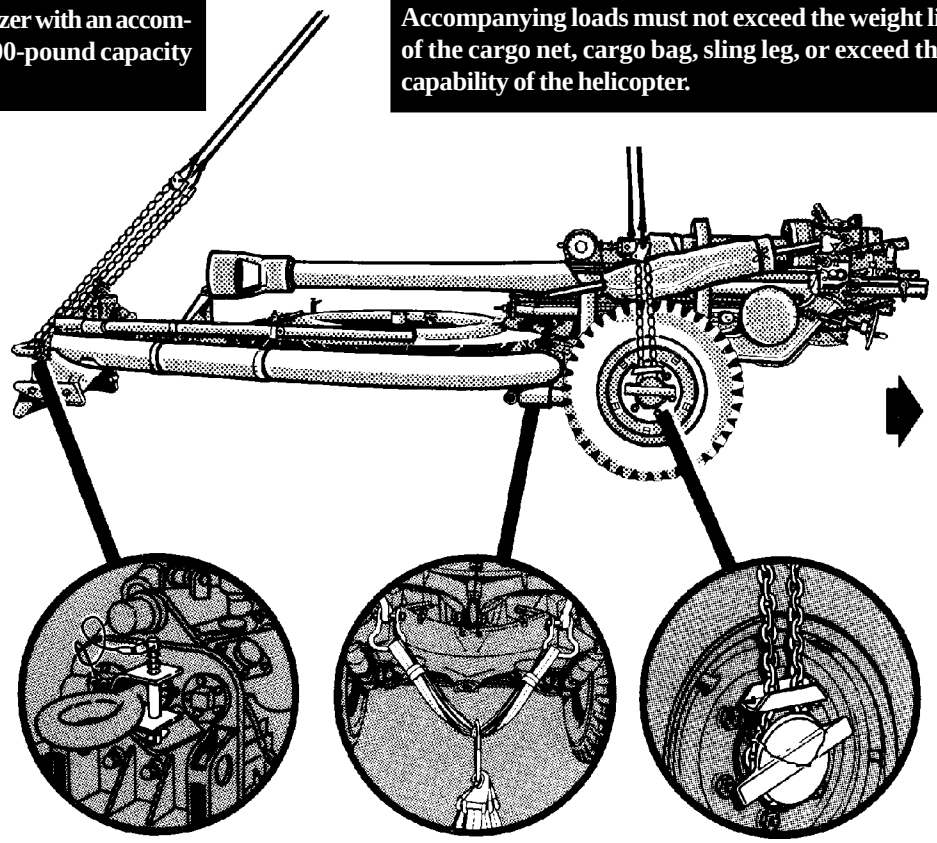
(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).

WARNING

When moving the howitzer with an accompanying load, the 25,000-pound capacity sling set must be used.

WARNING

Accompanying loads must not exceed the weight limits of the cargo net, cargo bag, sling leg, or exceed the lift capability of the helicopter.



RIGGING STEPS

1. Position the apex fitting on the barrel over the firing platform. Route outer sling legs 1and 2 to the wheel hubs. Route inner sling legs 3 and 4 to the lunette. Sling legs 1 and 3 must be on the left side of the load.

2. Route the chain end of sling leg 1 around the left wheel hub. Place the link from Table 6-7 in the grab hook. Pull the chain taut and ensure the chain is centered on the hub. Install the sling set chain safety clamp on the two chain links closest to the top of the wheel hub. If using the 25,000-pound capacity sling set, tie the two chain links together with 1/2-inch tubular nylon webbing. Repeat with sling leg 2 on the right wheel hub. Secure the excess chain with Type III nylon cord.

3. Route the chain end of sling legs 3 and 4 through the lunette. Place the correct link from Table 6-7 in the grab hook.

4. Cluster and tie or tape (breakaway technique) the sling legs together on top of the howitzers to prevent entanglement during hookup and lift-off.

5. Attach the accompanying load by routing the 3-foot, 4-loop, Type XXVI multiloop line through the eye of the sling leg attached to an A-22 or the apex fitting of a cargo net. Place a medium suspension clevis through the loop on each end of the multiloop line and attach to the provisions located under the howitzer carriage and inboard of the wheels.

Figure 6-7. M119 105-MM Howitzer, Folded/Towed Position

6-9. M119 105-MM Howitzer, Forward/Firing Position

a. Applicability. The following items in Table 6-8 are certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 6-8. M119 105-MM Howitzer, Forward/Firing Position

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M119 Howitzer	4,400	10K	Listed in rigging steps	110
M119 Howitzer with accompanying load	7,400	25K	Listed in rigging steps	110

b. Materials. The following materials are required to rig this load:

(1) Sling set (10,000-pound capacity) (when moving the howitzer without accompanying load).

(2) Sling set (25,000-pound capacity) (when moving the howitzer with an accompanying load).

(3) Reach Pendant (11,000 or 25,000-pound capacity).

(4) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(5) Cord, nylon, Type III, 550-pound breaking strength.

(6) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(7) Sling set chain safety clamp.

(8) Webbing, nylon, tubular, 1/2-inch (as required).

(9) Line, multiloop, Type XXVI, 4-loop, 3-foot (for accompanying load).

(10) Clevis, suspension, medium (2 each) (for accompanying load).

(11) Bag, cargo A-22 or net, cargo (5,000- or 10,000-pound capacity).

(12) Chain length, part number 38850-00053-102, from a 25,000-pound capacity sling set (1 each) (for accompanying load).

(13) Coupling link, part number 664241, from a 25,000-pound capacity sling set (1 each) (for accompanying load).

(14) Strap, cargo, tiedown, CGU-1/B (as required).

c. Personnel. Two persons can prepare and rig this load in 30 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

(a) Place the howitzer in the forward/firing position. If the firing platform is to be carried in the down position, follow these steps:

1 Mark the wheel hubs at the center of gravity (CG) with tape. The CG is located 6-inches behind (towards the lunette) the center of the hub.

2 Mark the center of the firing platform with tape. Roll the howitzer onto the firing platform aligning the tape strips. The wheel knock-off hub must be horizontal. Engage both parking brakes.

3 Connect the firing platform to the weapon and add an additional CGU-1/B tiedown strap.

(b) When the firing platform is carried on top of the trails ensure the wheel knock-off hub is horizontal. Engage the right wheel parking brakes.

(c) Secure the sight cover to the dial sight with tape

or Type III nylon cord.

(d) Secure the firing platform (if carried), hand spike, and jack to the trail assembly with Type III nylon cord.

(e) Ensure the lunette is in the extended position. Install the towing eye stop (C-clamp) on the lunette and secure in place with its retaining pins, when applicable.

(f) The sling set chain safety clamp is an additional authorized item. Refer to TM 9-1015-252-10 for NSN and installation information.

(g) When the detachable field spade is attached to the permanent spades, ensure the two locking pins are installed and locked. Route and tie a length of Type III nylon cord through the key ring of the cable and around the end of the locking pin.

(h) When moving the howitzer without an accompanying load, extend the chain on sling leg 3 by removing the chain length and coupling link from sling leg 4 and attaching them to the end of the chain on sling leg 3.

(i) When moving the howitzer with an accompanying load and using sling leg 4 on the accompanying load, extend the chain on sling leg 3 by adding an additional length of chain with a coupling link from a 25,000-pound capacity sling set.

(2) Rigging. Rig the load according to the steps in Figure 6-8.

NOTE: When an accompanying load requires a sling leg, you may remove and use one of the inner sling legs from the sling set, leaving one sling leg attached to the lunette of the howitzer.

(3) Hookup. The hookup team stands beside the howitzer on the trails. The static wand person discharges the static electricity with the static wand. The hookup person places the top loop of the reach pendant onto the aircraft cargo hook. The hookup team then moves clear of the helicopter but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

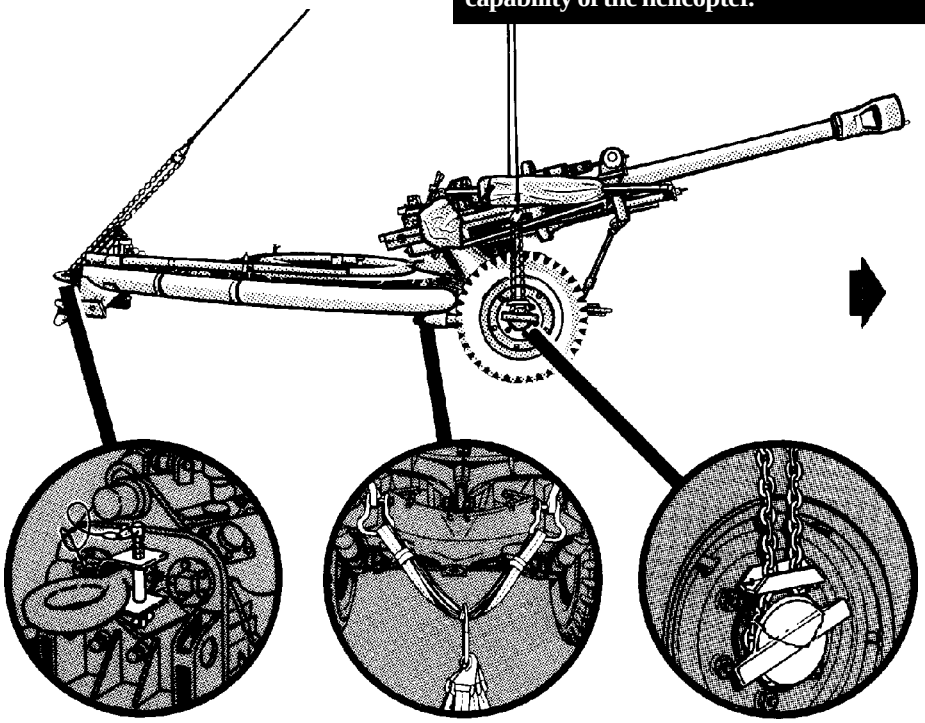
(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).

WARNING

When moving the howitzer with an accompanying load, the 25,000-pound capacity sling set must be used.

WARNING

Accompanying loads must not exceed the weight limits of the cargo net, cargo bag, sling leg, or exceed the lift capability of the helicopter.



RIGGING STEPS

1. Attach a reach pendant on the sling set apex fitting.

2. Position the apex fitting and the reach pendant on the breech assembly. Route outer sling legs 1and 2 to the wheel hubs. Route inner sling leg 3 to the lunette.

3. Route the chain end of sling leg 1 around the left wheel hub. Place link **55** (when using the 10,000-pound capacity sling set) or link **45** (when using the 25,000-pound capaclity sling set) in the grab hook. Pull the chain taut and ensure the chain is centered on the hub. Install the sling set chain safety clamp on the two chain links closest to the top of the wheel hub. If the sling set chain safety clamp is unavailable or if the 25,000-pound capacity sling set is being used, tie the two chain links together with 1/2-inch tubular nylon webbing. Repeat with sling leg 2 on the right wheel hub. Place link **50** (when using the 10,000-pound capacity sling set) or link **40** (when using the 25,000-pound capaclity sling set) in the grabhook. Secure the excess chain with Type III nylon cord

4. Route the chain end of the extended sling leg 3 through the lunette. Place link **35** (when using the 10,000-pound capacity sling set) or link **28** (when using the 25,000-pound capaclity sling set) in the grab hook. Secure the excess chain with Type III nylon cord

5. Cluster and tie or tape (breakaway technique) the sling legs together on top of the howitzers to prevent entanglement during hookup and lift-off.

6. Attach the accompanying load (if required) by routing the 3-foot, 4-loop, Type XXVI multiloop line through the eye of the sling leg attached to an A-22 or the apex fitting of a cargo net. Place a medium suspension clevis through the loop on each end of the multiloop line and attach to the provisions located under the howitzer carriage and inboard of the wheels.

Figure 6-8. M119 105-MM Howitzer, Forward/Firing Position

6-10. M114A2 155-MM Howitzer, Towed

a. Applicability. The following item in Table 6-9 is certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

Table 6-9. M114A2 155-MM Howitzer, Towed

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M114A2 Howitzer	12,700	40K	50/10	110

b. Materials. The following materials are required to rig this load:

(1) Sling set (40,000-pound capacity) with two additional 8-foot chain lengths and coupling links.

(2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(3) Cord, nylon, Type III, 550-pound breaking strength.

(4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(5) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable substitute.

(6) Tie-down strap, cargo, CGU-1/B (2 each).

c. Personnel. Two persons can prepare and rig this load in 15 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

(a) Stow all howitzer equipment, including sights, in the proper place, except the spade key. Stow the spade key in the section chest. Secure all equipment with tape or Type III nylon cord.

(b) Position the section chest on the rear of the trails.

(c) Secure the section chest to the trails by routing the tie-down strap through the handles of the chest and both trail lifting handles.

(d) Secure the spades to the brackets with Type III nylon cord. Secure all hoses and cables to the sides of the trails with tape or Type III nylon cord.

(e) Engage one parking brake.

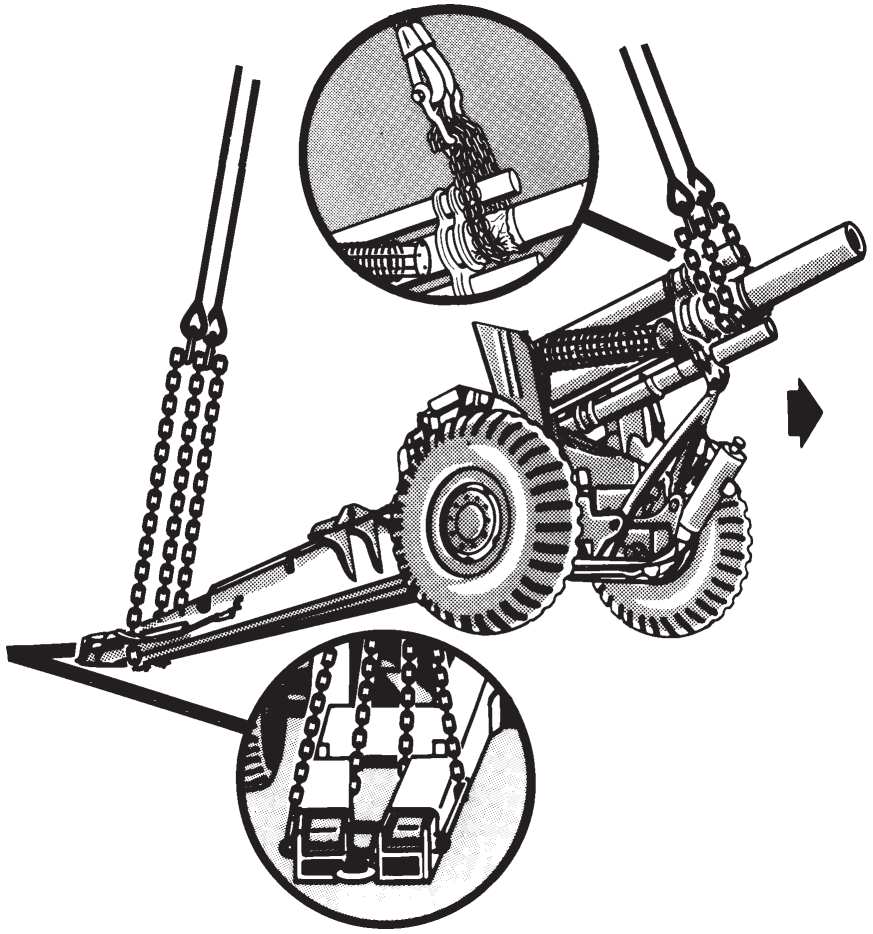
(f) Pad the barrel forward of the recoil mechanism. Ensure all sight mounts are removed or padded. Ensure the gun jack pin is locked in place.

(g) Remove or secure all gun covers.

(2) Rigging. Rig the load according to the steps in Figure 6-9.

(3) Hookup. The hookup team stands on the wheels or on the firing platform. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the helicopter but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



RIGGING STEPS

1. Position the apex fitting on the breech assembly. Route outer sling legs 1and 2 to the barrel. Route inner sling legs 3 and 4 to the trail. Sling legs 1 and 3 must be on the left side of the load. Attach the additional chain lengths to sling legs 3 and 4 using the coupling links.

2. Position the grab link of sling leg 1 on the left side of the gun tube padded area. Route the chain end under the tube and back up to the grab link. Place the correct link from Table 6-9 in the grab hook. Repeat with sling leg 2 with the grab link on the right side of the gun tube. Secure the excess chain with Type III nylon cord

3. Route the chain end of sling leg 3 down through the spade key bracket on the outboard side of the left trail, under the trail, and up the inboard side of the trail. Place the correct link from Table 6-9 in the grab hook. Repeat with sling leg 4 on the right trail.

4. Cluster and tie or tape (breakaway technique) the sling legs together on top of the howitzers to prevent entanglement during hookup and lift-off.

Figure 6-9. M114A2 155-MM Howitzer, Towed

6-11. M198 155-MM Howitzer, Towed/Stowed

a. Applicability. The following items in Table 6-10 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

Table 6-10. M198 155-MM Howitzer, Towed/Stowed

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M198 Howitzer in towed position	15,740	25K	50/3	110
M198 Howitzer in stowed position	15,740	25K	70/3	110

b. Materials. The following materials are required to rig this load:

(1) Sling set (25,000-pound capacity) with two additional 8-foot chain lengths and coupling links.

(2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(3) Cord, nylon, Type III, 550-pound breaking strength.

(4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(5) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable substitute.

(6) Tie-down strap, cargo, CGU-1/B (2 each).

(7) Clevis assembly, suspension, large, one per lift provision.

(8) Reach pendant (25,000-pound capacity) required for sling loading in the towed position.

c. Personnel. Two persons can prepare and rig this load in 20 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

(a) Secure the spades to the trails with the tie-down straps.

(b) Secure all hoses and cables to the outboard side of the right trail with tape or Type III nylon cord.

(c) Pad the sight mounts and secure the padding with tape or Type III nylon cord.

(d) Attach a large clevis assembly to the trail lift provisions located forward of the stowed firing baseplate.

(e) Ensure the top carriage locking pin is in place and is secured with a locking safety clip for the towed position.

CAUTION:
Do not attempt to lift the howitzer if the top carriage lock pin will not drop into place or if the locking safetyclip is missing. Either of these conditions could result in the top carriage rotating in flight.

(f) Position the barrel and install the travel lock; secure with the pins for the towed position.

(g) Attach a large clevis assembly to the lift provision on each side of the carriage for the towed position.

(h) Attach a large clevis assembly to the two lift provisions located at the upper end of the equilibrator for the towed position.

(2) Rigging. Rig the load according to the steps in Figure 6-10.

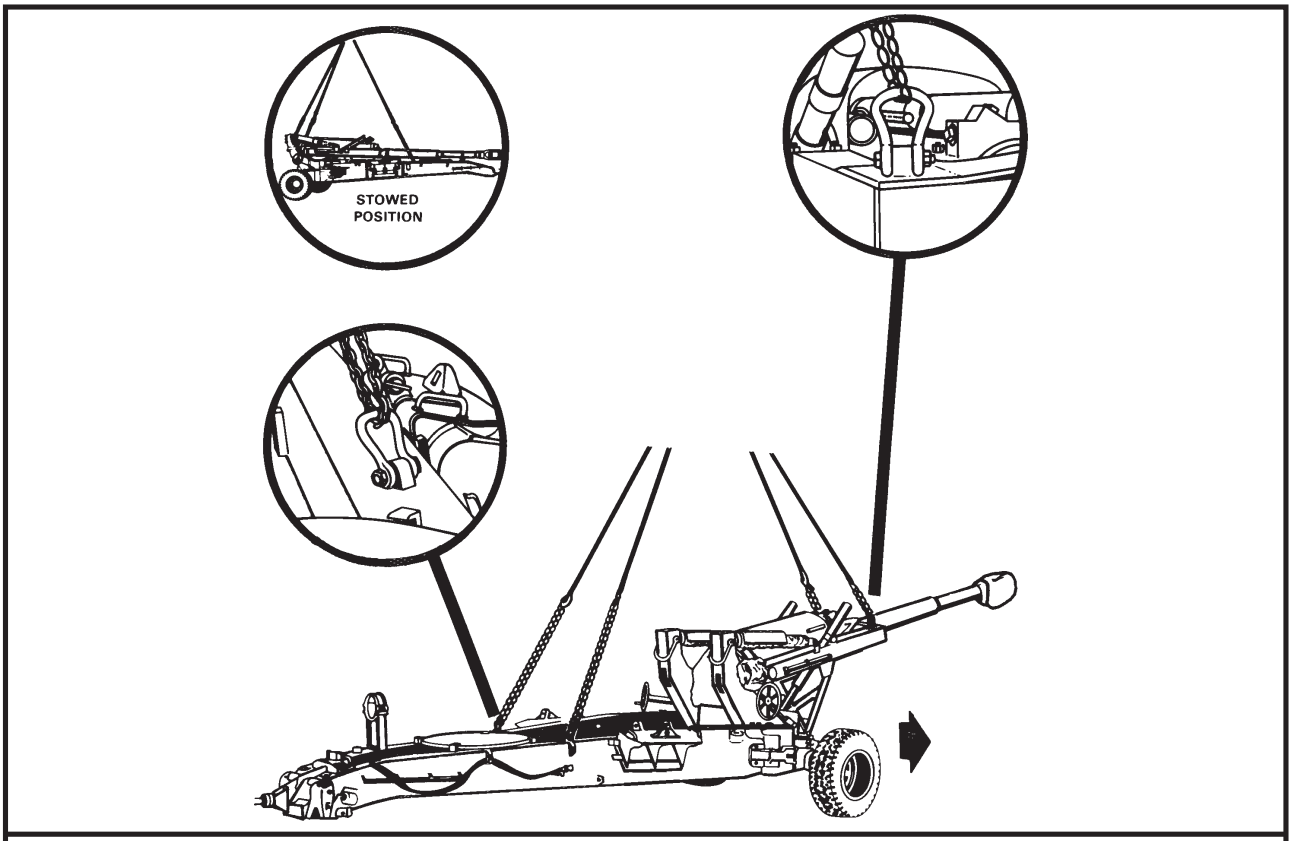
NOTE: Hookup of this load presents substantial risk of damage to the load or injury to the hookup personnel. Use of a reach pendant is recommended for this load.

(3) Hookup. The hookup team stands on the carriage.

NOTE: The helicopter must approach the howitzer over the trails.

The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the helicopter but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



RIGGING STEPS (TOWED POSITION)

1. Install the 25,000-pound capacity reach pendant on the bolt of the apex fitting. Position the reach pendant and apex fitting on top of the breech block. Route outer sling legs 1and 2 to the front of the carriage. Route inner sling legs 3 and 4 to the trails. Sling legs 1 and 3 must be on the left side of the load. Attach the additional chain lengths to sling legs 3 and 4 using the coupling links.

2. Route the chain end of sling leg 1 through the clevis on the lifting provision on the left side of the carriage assembly. Place the correct link from Table 6-10 in the grab hook. Repeat with sling leg 2 and the right front lift provision on the right side of the carriage. Secure the excess chain with Type III nylon cord

Figure 6-10. M198 155-MM Howitzer, Towed/Stowed

3. Route the chain end of sling leg 3 through the clevis on the lift provision on top of the left trail. Place the correct link from Table 6-10 in the grab hook. Repeat with sling leg 4 on the right trail.

4. Cluster and tie or tape (breakaway technique) the sling legs together on top of the howitzers to prevent entanglement during hookup and lift-off.

RIGGING STEPS (STOWED POSITION)

1. Position the apex fitting on top of the barrel centered on the load. Route outer sling legs 1and 2 to the trails. Route inner sling legs 3 and 4 to the breech end. Sling legs 1 and 3 must be on the left side of the load. Attach the additional chain lengths to sling legs 1 and 2 using the coupling links.

2. Route the chain end of sling leg 1 through the clevis on the left trail. Place the correct link from Table 6-10 in the grab hook. Repeat with sling leg 2 and the right trail.

3. Route the chain end of sling leg 3 through the clevis on the left side of the equilibrator above the breech. Place the correct link from Table 6-10 in the grab hook. Repeat with sling leg 4 on the right side. Secure the excess chain with Type III nylon cord.

4. Cluster and tie or tape (breakaway technique) the sling legs together on top of the howitzers to prevent entanglement during hookup and lift-off.

Figure 6-10. M198 155-MM Howitzer, Towed/Stowed (continued)

6-12. Two M101A1 155-MM Howitzers

a. Applicability. The following items in Table 6-11 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

Table 6-11. Two M101A1 155-MM Howitzers

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Two M101A1 Howitzers	9,960	40K	Listed in rigging instructions	100

b. Materials. The following materials are required to rig this load:

(1) Sling set (40,000-pound capacity) with two additional chain lengths and coupling links for the sling set being used.

(2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(3) Cord, nylon, Type III, 550-pound breaking strength.

(4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(5) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable substitute.

(6) Tie-down strap, cargo, CGU-1/B (as required).

(7) Pad, energy-dissipating, 24- x 24-inch (2 each) or 4- x 4- x 24-inch lumber (2 each).

c. Personnel. Two persons can prepare and rig this load in 15 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

NOTE: The howitzer with the gun tube facing in the direction of flight is designated as howitzer 1.

(a) Position the howitzers side by side with the gun tubes facing in opposite directions. Howitzer 1 is on the left side facing forward and howitzer 2 is on the right side facing aft.

(b) Ensure the trails are secured. Rotate the lunette to the down position. Secure the trail closing lock handles with Type III nylon cord or tape.

(c) Place honeycomb between the right wheel of howitzer 1 and the right trail of howitzer 2. Route two CGU-1/B cargo tie-down straps through the top of the wheel rim, out the bottom of the rim, and around the honeycomb and trail of howitzer 2. Repeat with the right wheel of howitzer 2 and the right trail of howitzer 1.

(d) Ratchet the howitzers together as securely as possible. Add more straps as required. A minimum of two straps per wheel is required.

(e) Close and lock the breech of each gun. Secure or remove the muzzle, breech, and tube covers. Remove or pad the sight mounts.

(f) Place the gun section equipment chest on the trails and secure it with CGU-1/B tie-down straps.

(g) Pad the gun tubes above the cradles and around the forward edge of the recoil damper assemblies. Secure the padding with tape or Type III nylon cord.

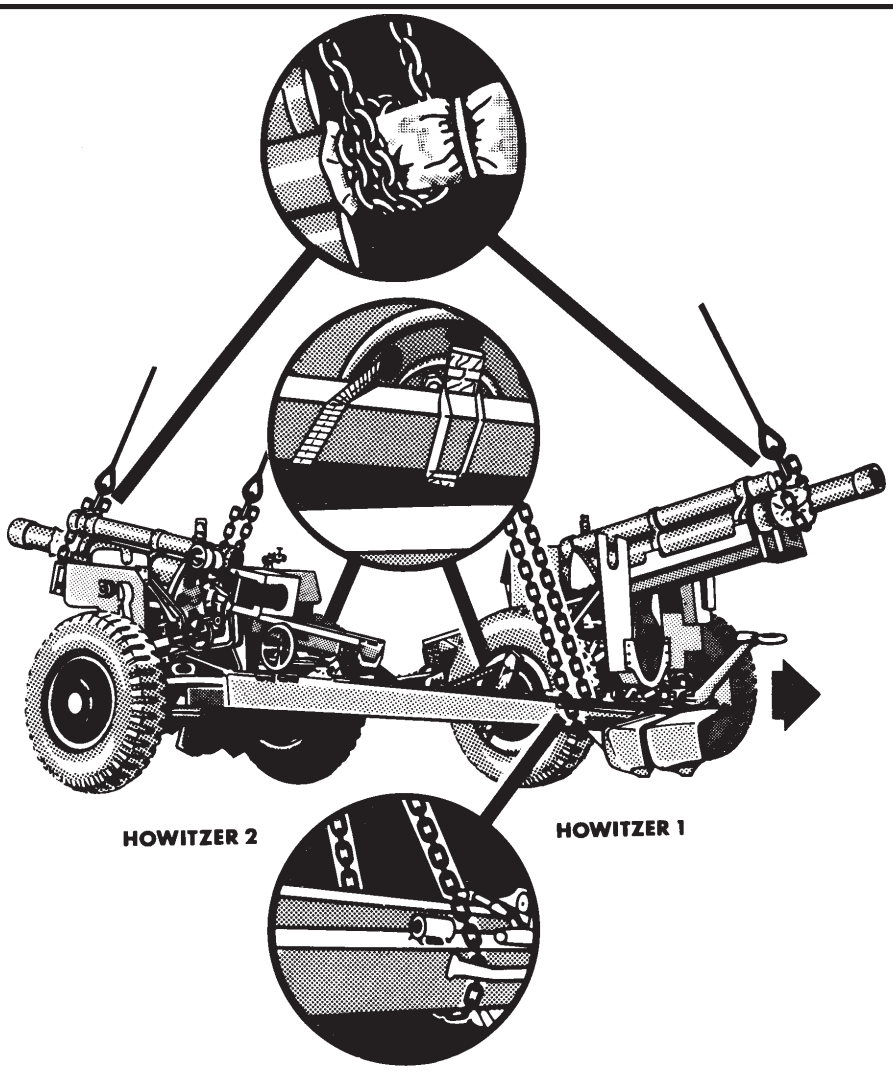
(h) Pad the gun trails on both howitzers aft of the traveling lock shaft area.

(i) Set the hand brakes.

(2) Rigging. Rig the load according to the steps in Figure 6-11.

(3) Hookup. The hookup team stands alongside the howitzer or on top of the trails. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the helicopter but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



RIGGING STEPS

1. Position the apex fitting between the breech area of the two howitzers. Route outer sling leg 1 to the barrel end of howitzer 1. Route outer sling leg 2 to the trail end of howitzer 2. Route inner sling leg 3 to the trail end of howitzer 1. Route inner sling leg 4 to the to the barrel end of howitzer 2. Sling legs 1 and 3 must be on the left side of the load. Attach the additional chain lengths to sling legs 2 and 3 using the coupling links.

2. Wrap the chain end of sling leg 1 once around the padding on the barrel of howitzer 1 and insert link 30 in the grab link. Repeat with sling leg 2 on the barrel end of howitzer 2. Secure the excess chain with Type III nylon cord.

3. Wrap the chain end of sling leg 2 around the padded area on the trail end of howitzer 2 and insert link 55 in the grab link. Repeat with sling leg 3 and the trails on howitzer 1. Secure the excess chain with Type III nylon cord.

4. Cluster and tie or tape (breakaway technique) the sling legs together on top of the howitzers to prevent entanglement during hookup and lift-off.

Figure 6-11. Two M101A1 155-MM Howitzers

6-13. M167 20-MM AA Gun (Vulcan) with or without one A-22 Cargo Bag

a. Applicability. The following items in Table 6-12 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

Table 6-12. M167 20-MM AA Gun (Vulcan)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M167 Vulcan	3,260	10K	33/3	80
M167 Vulcan with one A-22 Cargo Bag	5,460	10K	33/3	80

b. Materials. The following materials are required to rig this load:

(1) Sling set (10,000-pound capacity).

(2) Sling leg assembly from a 10,000-pound capacity sling set (if required).

(3) Bag, cargo, aerial delivery, A-22 (1 each) (if required).

(4) Fitting, apex (10,000-pound capacity) (1 each) (if required).

(5) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(6) Cord, nylon, Type III, 550-pound breaking strength.

(7) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(8) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable substitute.

c. Personnel. Two persons can prepare and rig this load in 30 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

(a) Pad the horizontal brace aft of the generator. Secure the padding with tape or Type III nylon cord.

(b) Point the radar antenna assembly directly upward.

(c) Place the cover on the gun and secure it with Type III nylon cord.

(d) Secure all loose equipment with tape or Type III nylon cord.

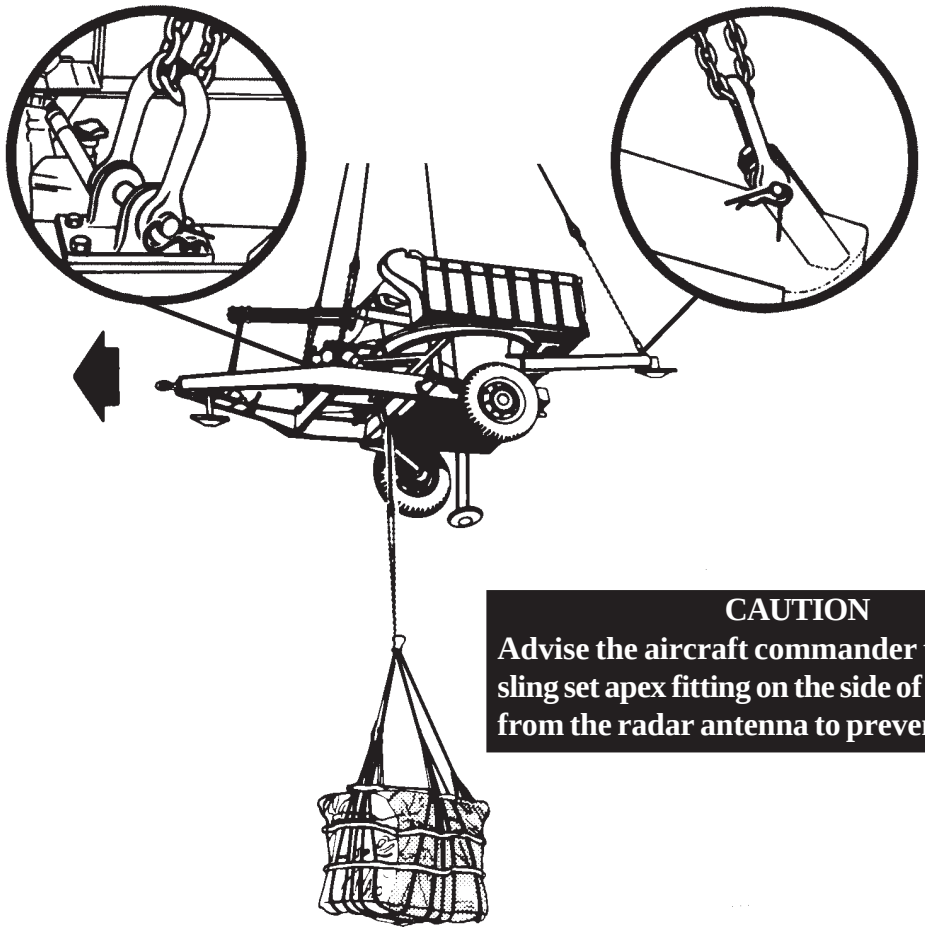
(e) Engage one parking brake. Install lifting clevises on the tongue on trails.

(f) Extend and secure the rear trails in the down position.

(2) Rigging. Rig the load according to the steps in Figure 6-12.

(3) Hookup. The hookup team stands alongside the gun or on the trailer frame on the same side as the radar dish. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the helicopter but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



CAUTION

Advise the aircraft commander to release the sling set apex fitting on the side of the gun away from the radar antenna to prevent damage.

RIGGING STEPS

1. Position the apex fitting on top of the gun. Route outer sling legs 1and 2 to the rear extended trails. Route inner sling legs 3 and 4 to the tongue end. Sling legs 1 and 3 must be on the left side of the load. Sling legs 1 and 2 are on the rear of the load.

2. Route the chain end of sling leg 1 through the lift provision on the left trail. Place the correct link from Table 6-12 in the grab hook. Repeat with sling leg 2 and the right trail.

3. Route the chain end of sling leg 3 through the lift provision on top of the left side of the tongue. Place the correct link from Table 6-12 in the grab hook. Repeat with sling leg 4 on the tongue right side lift provision. Secure the excess chain with Type III nylon cord.

4. Cluster and tie or tape (breakaway technique) the sling legs together on top of the howitzers to prevent entanglement during hookup and lift-off.

5. Place the separate apex fitting on the additional apex fitting. Place the apex fitting around the padded area on the horizontal strut. (The apex fitting pin must face up.)

6. Route the sling leg under the tongue to the accompanying load. Route the chain end of the sling leg through the medium clevis on the A-22 or the cargo net apex fitting and insert link 3 in the grab hook.

Figure 6-12. M167 20-MM AA Gun (Vulcan)

6-14. BMS-120 Battalion Mortar System

a. Applicability. The following item in Table 6-13 is certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

Table 6-13. BMS-120 Battalion Mortar System

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
BMS-120, carriage mounted	764	10K	3/67	60

b. Materials. The following materials are required to rig this load:

(1) Sling set (10,000-pound capacity).

(2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(3) Cord, nylon, Type III, 550-pound breaking strength.

(4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(5) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable substitute.

(6) Tie-down strap, cargo, CGU-1B (as required).

c. Personnel. Two persons can prepare and rig this load in 20 minutes.

d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load using the following steps:

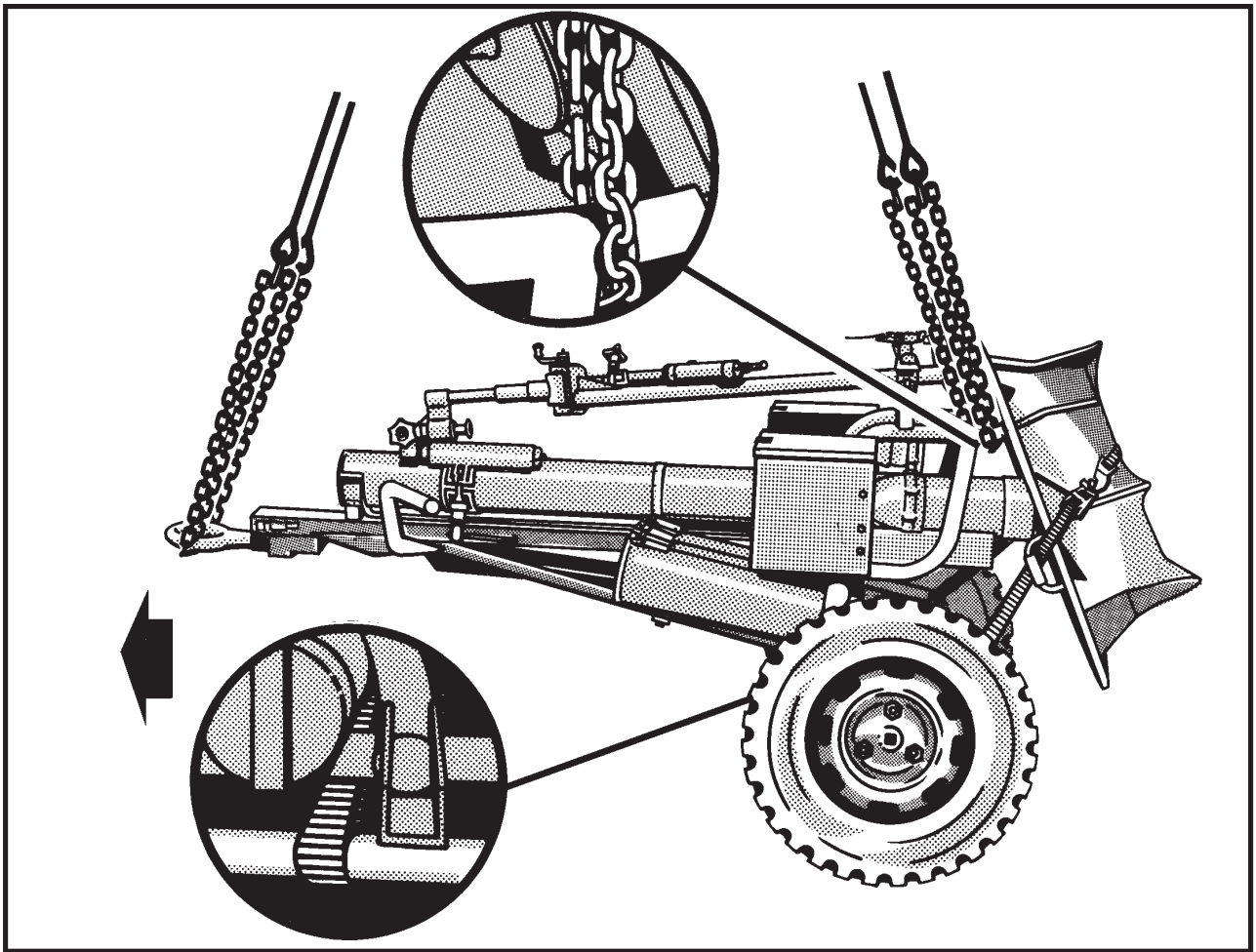
(a) Secure all loose equipment, chains and wires with tape or Type III nylon cord.

(b) Secure the mortar to the carriage by routing the tie-down strap across the mortar base plate and around the axle. Route one end of the strap through the base plate left handle, around the axle, and back through the base plate handle. Continue the strap across the base plate, through the base plate right handle, around the axle, back through the base plate handle, and attach the end of the tie-down strap to the ratchet. Pad the tie-down strap where it makes contact with the sharp edges of the base plate.

(2) Rigging. Rig the load according to the steps in Figure 6-13.

(3) Hookup. The hookup team stands alongside the carriage. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the helicopter but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



RIGGING STEPS

1. Position the apex fitting on top of the carriage. Route outer sling legs 1and 2 to the anchor points behind the base plate supports. Route inner sling legs 3 and 4 to the lunette. Sling legs 1 and 3 must be on the left side of the load. Sling legs 1 and 2 are on the rear of the load.

2. Route the chain end of sling leg 1 around the horizontal pipe on the left side of the carriage between the vertical pipe and the base plate. Place the correct link from Table 6-13 in the grab hook. Repeat with sling leg 2 and the right side of the carriage. Secure the excess chain with Type III nylon cord.

3. Route the chain end of sling leg 3 through the lunette. Place the correct link from Table 6-13 in the grab hook. Repeat with sling leg 4 on the lunette.

4. Cluster and tie or tape (breakaway technique) the grab hooks from sling legs 1 and 2 together on top of the bipod assembly and sling legs 3 and 4 together on top of the lunette to prevent entanglement during hookup and lift-off.

NOTE: Failure to use the proper breakaway technique in taping or tying the sling legs could result in damage to the load.

Figure 6-13. BMS-120 Battalion Mortar System